

**Appendix E-2-A**

**Air Resources Board**

**Pothole Road Study**





## Air Resources Board

Alan C. Lloyd, Ph.D.  
Chairman

Winston H. Hickox  
Secretary for  
Environmental  
Protection

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Gray Davis  
Governor

### MEMORANDUM

TO: Todd Wong, Manager  
Emissions Evaluation Section  
Stationary Source Division

FROM: George Lew, Chief *George Lew*  
Engineering and Laboratory Branch  
Monitoring and Laboratory Division

DATE: September 4, 1999

SUBJECT: RESULTS OF AIRBORNE ASBESTOS MONITORING NEAR  
POTHOLE ON McKEON PONDEROSA WAY IN FORESTHILL  
CALIFORNIA

At the request of the Placer County APCD, Monitoring and Laboratory Division staff (staff) conducted airborne asbestos monitoring along the abandoned portion of McKeon Ponderosa Way (Road) in Foresthill, California. The monitoring goal is to determine if the dust, caused by vehicles going over the potholes, is a source of airborne asbestos. This Road is paved, is not maintained by the county due to its abandoned status, and has numerous potholes. These potholes expose the serpentine road base materials which have an asbestos content between 10 percent and over 50 percent according to a recent report by the Department of Toxic Substances Control. Staff observed that local traffic driving across the potholes, as well as nearby serpentine covered driveways, generated massive dust clouds. For this study driveways were not evaluated as a source of airborne asbestos.

#### A. AIRBORNE ASBESTOS MONITORING

##### 1. Sampling

Staff conducted the airborne asbestos monitoring from July 5 through July 8, 1999. Three sampling sites were chosen along the Road. The sites were chosen due to their proximity to potholes in the Road, their distance from driveways, and the availability of a surface to setup the samplers. The first site, called "BEG" was 0.1 miles from the beginning of the Road. The second site, called "MID," was 1.2 miles from the "BEG" site. The third site, called "END" was

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1.5 miles from the BEG site and at the entrance to an abandoned quarry. Attachment 1 is a street map showing the locations of the sampling sites. Aerial photographs from United States Geological Survey (USGS) are contained in Attachment 2 showing the sampling sites. A Global Positioning System (GPS) receiver determined the longitude and latitude of the sampling positions. However, the non-military GPS is not accurate enough to pinpoint the sampling locations. To overcome this inaccuracy, ten readings are taken at each location (Attachment 3) then averaged and plotted on a topographical map, Attachment 4.

An asbestos sampler (sampler) was placed at the three sampling locations. The sampler consists of a filter cassette, battery powered pump and battery. The filter cassette is supported off the ground by a TV antenna tripod at a level within breathing zone of an adult. A schematic of the sampler is contained in Attachment 5. The flow is checked before and after the run.

As mentioned previously, monitoring started on July 5 and ended on July 8. Three eight (8) hour samples were taken at each site during the sampling period which started around 7:30 a.m. and ended around 3:30 p.m. Due to security, samplers were set-up each morning and removed each afternoon.

On July 9, staff sent the samples to our contract laboratory, RJ Lee Group Inc. (Lab) by United Parcel Service overnight. The Lab analyzed all samples by ARB Level 3 TEM.

## 2. Results

The asbestos concentration results are summarized in Attachment 6. All of the samples had detectable amounts of airborne asbestos. Airborne asbestos concentrations range from a low of 0.0009 structures per cubic centimeter (S/cc) to a high of 0.0214 S/cc. Seven of the nine samples had concentrations greater than the minimum detection limit. Over half the samples with detectable asbestos concentration had fibers with a length greater than five (5) microns. This unusually high fraction of samples with fiber lengths greater than 5 microns may be due to the close proximity of the sampler to the potholes. The first site had the highest asbestos concentration each day and had the heaviest traffic. RJ Lee supplies a computer generated count sheet for each sample. The length and width data and the asbestos type information are available on the count sheet. Copies of RJ Lee reports along with count sheets are contained in Attachment 7.

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B. QUALITY CONTROL

In addition to the nine (9) samples, three Quality Control (QC) samples were submitted to the Lab. A box blank and two field blanks were taken. The box blank is a unopened cassette and is used to confirm that the original unused cassettes are not contaminated. The field blank is used to determine if the flow meter is a source of asbestos contamination. The field blank is handled like the eight hour samples. Also, only one flow check is performed. Two flowmeters were used in this study to measure the sampler's flowrate. A field blank was taken for each flowmeter. The results of the analysis of the QC Samples is contained in Attachment 6. Staff did not find any asbestos contamination.

Staff placed a label on each filter cassette which contained the sample number and other information. Staff maintained a log sheet which list the sample numbers, the sampling period, the date of sample collection, beginning and ending flowrate, and results of leak checks. A chain of custody sheet accompanied each sample. The Lab upon receiving the samples verified the number of samples received and note if the chain of custody tape on the box was broken upon receipt. In addition the Lab signed the chain of custody forms and returned the original to staff. When analyzing the sample, the Lab maintains its internal chain of custody.

C. TRAFFIC COUNTING

Staff counted traffic at the first site during the sampling period. Traffic peaked the second day (18 vehicles and 5 motorcycles) with residents stopping and to ask questions. On the third day staff spent only 80% of the time at the first site. However, the traffic count was low for that day. Attachment 8 is a tabulation of the traffic data.

D. METEOROLOGICAL DATA

Meteorological (Met) data consisted of wind speed and direction were taken only during the sampling period. The Met station was hung on the same tripod as the sampler. A schematic of the Met station is contained in Attachment 8. Staff reduced the data and prepared the wind roses for the sampling period of each sampler. However, the first hour of data were not useable because all samplers were setup before the meteorological sensors were brought online. Attachment 9 shows the wind roses for each day.

If you have questions or need more information, please contact me at 327-0900 or have your staff contact James McCormack of my staff at 322-2369.

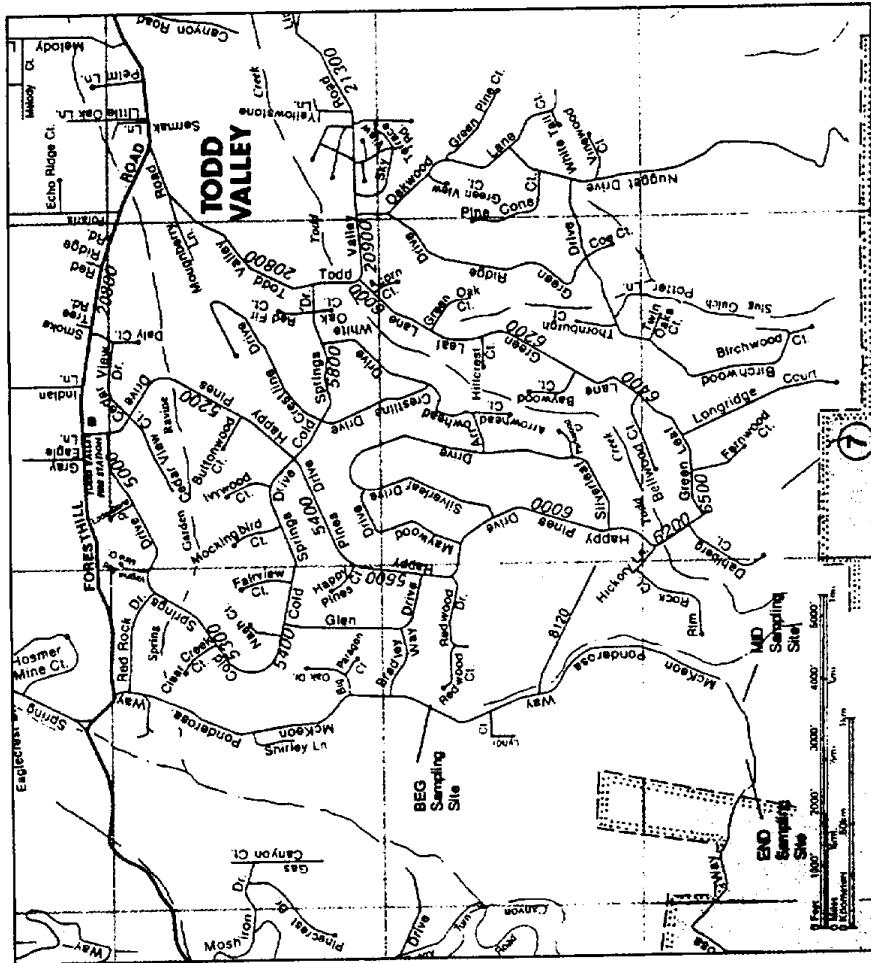
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Attachments (9)

- Attachment 1 – Street Map
- Attachment 2 – Aerial Photo's
- Attachment 3 – GPS Data
- Attachment 4 – Topographical Map
- Attachment 5 – Sampler Schematic
- Attachment 6 – Results
- Attachment 7 – RJ Lee Reports
- Attachment 8 – Traffic
- Attachment 9 – Met Data

cc: Bill Loscutoff

**Attachment 1**  
**Street Map Showing Sampling Locations**



**Attachment 2**  
**Aerial Photographs of Sampling Sites**

Photo of all three sampling sites.

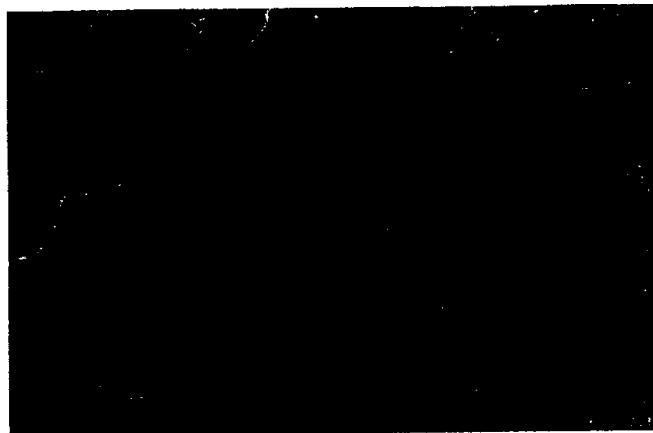


Photo of Middle and End Sampling Sites.

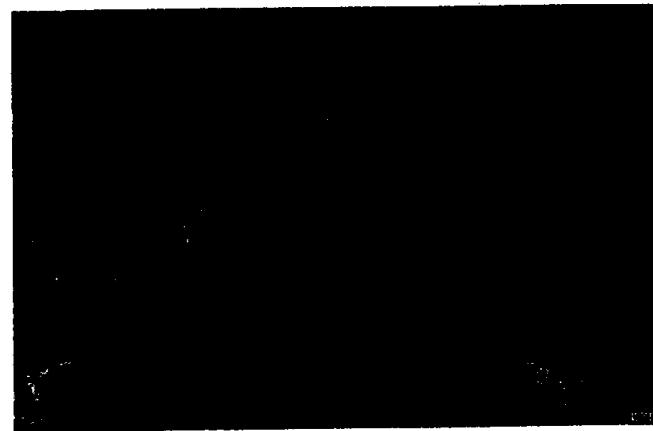
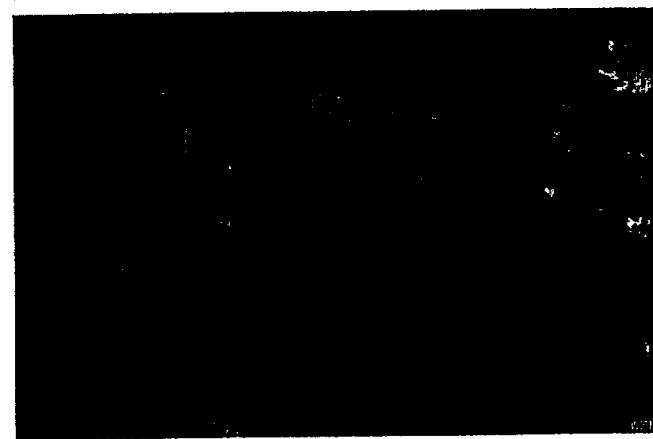


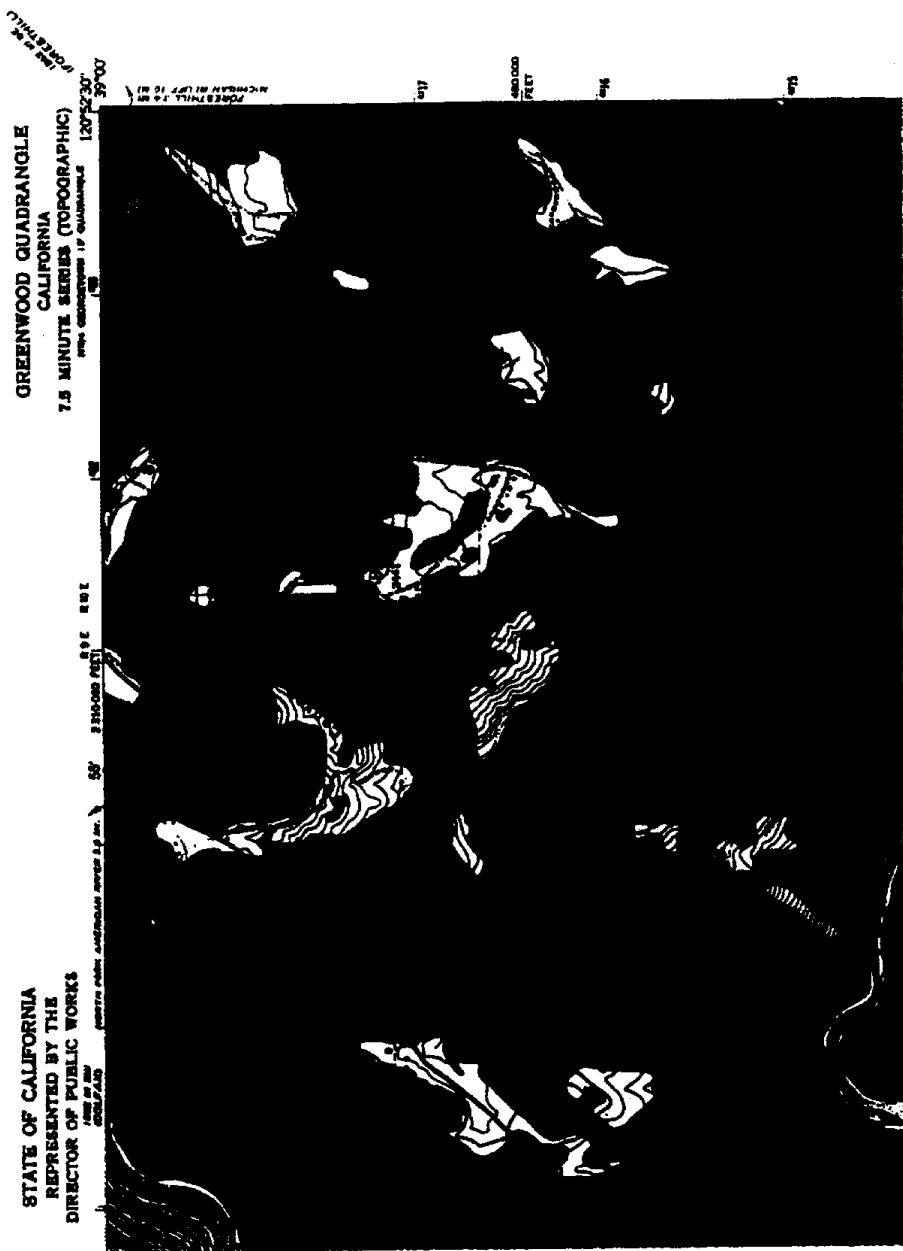
Photo of Beginning Sampling Site.



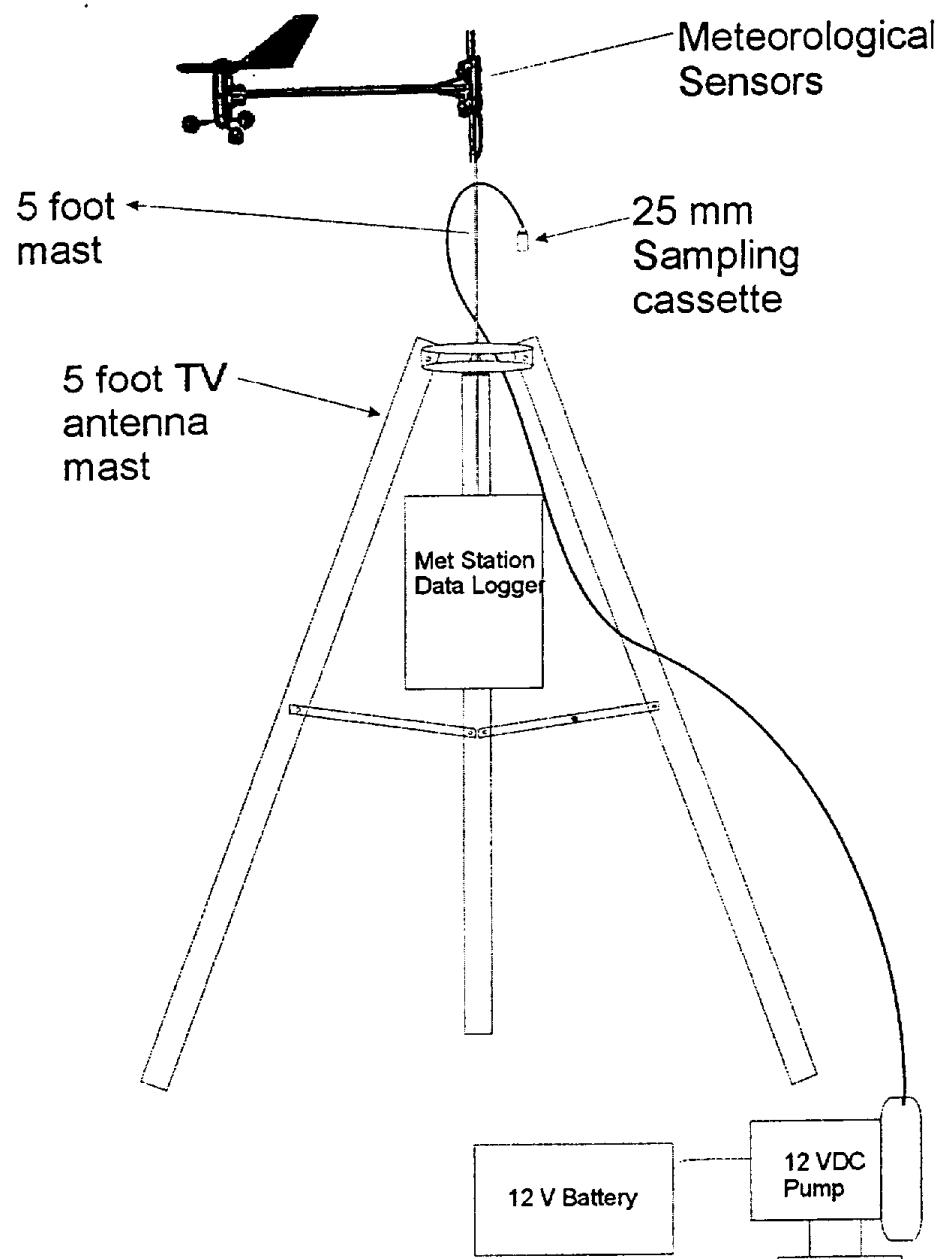
Attachment 3  
Longitude and Latitude Coordinate of Sampling Sites

Sampling Location	Readings	Latitude			Longitude			Altitude
		Degrees	Minutes		Degrees	Minutes		
Beginning of McKeon Ponderosa Rd	beg0	38	59.214	N	120	54.393	W	2143
	beg1	38	59.259	N	120	54.426	W	2323
	beg2	38	59.228	N	120	54.438	W	2228
	beg3	38	59.218	N	120	54.419	W	2140
	beg4	38	59.201	N	120	54.387	W	2058
	beg5	38	59.220	N	120	54.363	W	2075
	beg6	38	59.201	N	120	54.368	W	2453
	beg7	38	59.223	N	120	54.409	W	2292
	beg8	38	59.211	N	120	54.393	W	2467
	beg9	38	59.146	N	120	54.332	W	2856
Middle of McKeon Ponderosa Rd	average	38	59.212	N	120	54.393	W	2304
		38.987	—	N	120.907	—	W	
	mid0	38	58.430	N	120	54.841	W	2448
	mid1	38	58.395	N	120	54.800	W	2006
	mid2	38	58.391	N	120	54.874	W	2178
	mid3	38	58.394	N	120	54.837	W	2346
	mid4	38	58.428	N	120	54.873	W	2386
	mid5	38	58.452	N	120	54.888	W	2417
	mid6	38	58.456	N	120	54.886	W	2496
	mid7	38	58.463	N	120	54.882	W	2406
End of McKeon Ponderosa Rd	mid8	38	58.490	N	120	54.899	W	2265
	mid9	38	58.486	N	120	54.806	W	2301
	average	38	58.439	N	120	54.859	W	2325
		38.974	—	N	120.914	—	W	
	end0	38	58.346	N	120	54.451	W	1978
	end1	38	58.373	N	120	54.565	W	843
	end2	38	58.387	N	120	54.465	W	2192
	end3	38	58.424	N	120	54.522	W	2473
	end4	38	58.392	N	120	54.497	W	2530
	end5	38	58.353	N	120	54.463	W	1954
	end6	38	58.358	N	120	54.465	W	1891
	end7	38	58.388	N	120	54.472	W	2094
	end8	38	58.406	N	120	54.486	W	2158
	end9	38	58.396	N	120	54.460	W	1981
	average	38	58.382	N	120	54.485	W	2009
		38.973	—	N	120.908	—	W	

**Attachment 4**  
**Topographical Map Showing Sampling Locations**



Attachment 5  
Airborne Asbestos Sampling Station



Attachment 6  
Results of TEM Analysis

Log #	Sample #	Asbestos Concentration (Structures per Cubic Centimeter)		
		MDL	All Fibers	>5 Microns
PH-1	END-1	0.0009	0.0009	ND
PH-2	MID-1	0.0009	0.0027	ND
PH-3	BEG-1	0.0009	0.0054	0.0009
PH-4	END-2	0.0009	0.0017	0.0009
PH-5	MID-2	0.0009	0.0078	ND
PH-6	BEG-2	0.0009	0.0135	0.0051
PH-7	END-3	0.0009	0.0009	ND
PH-8	MID-3	0.0009	0.0150	0.0026
PH-9	BEG-3	0.0009	0.0214	0.0027
PH-10	BOX-1	0.0009	ND	ND
PH-11	FIELD-1	0.0009	ND	ND
PH-12	FIELD-2	0.0009	ND	ND

BEG is acronym for Beginning of McKeon Ponderosa Way  
 BOX is acronym for Box Blank  
 END is acronym for End of McKeon Ponderosa Way  
 FIELD1 is acronym for Field Blank for Flowmeter #1  
 FIELD2 is acronym for Field Blank for Flowmeter #2  
 MDL is acronym for Minimum Detection Limit  
 MID is acronym for Middle of McKeon Ponderosa Way  
 ND is acronym for none detected  
 S/CC is acronym for Structures per Cubic Centimeter

**Attachment 7**  
**RJ Lee Report**



# RJ Lee Group, Inc.

530 McCormick St. • San Leandro, CA 94577  
(510) 567-0480 • FAX (510) 567-0488

July 17, 1999

Mr. George Lew  
California Air Resources Board  
Engineering & Laboratory Branch  
600 North Market Blvd  
Sacramento, CA 95834



RE: TEM Asbestos Analysis Results for Samples as Shown on Test Report & Table II  
RJ Lee Group Job No.: ATC907233  
Customer Project No.: C-99-031

Dear Mr. Lew:

Enclosed are the results from the transmission electron microscopy (TEM) asbestos analysis for your above referenced project using CARB Level III analysis. Test Report lists each sample identification number, filter area, sample volume, area analyzed, structure counts, analytical sensitivity, and the concentration of asbestos. Table II lists the same information as Test Report for structures  $\geq 5\mu\text{m}$  in length. Table V lists the 95% confidence limits for the analyses, based on the Poisson distribution. Count sheets are included.

These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions and no responsibility or liability is assumed for the manner in which the results are used or interpreted.

Should you have any questions, please feel free to call.

Sincerely,

  
Bernard Thomas  
Project Manager

BT/sjb  
Enclosures

Monroeville, PA • San Leandro, CA • Washington, D.C. • Houston, TX  
Chopra-Lee, Inc., Grand Island, NY

**Test Report**  
**Total Asbestos Structure Concentration**  
**TEM Level III Analysis**  
**Project ATC907233**

RJ Lee Group Sample Number	Client Sample Number	Area	Filter Area (sq mm)	Volume † (Liters)	Analyzed (sq mm)	Structures Char Amp	Analytical Sensitivity † (S/sq. mm)	Concentration (S/cc) (S/sq. mm)	Analysis Date
1822525CT	PH-1-END-1	385	4732.00	0.0921	1	0	10.9	0.0009	10.9 0.0009 7/15/99
1822526CT	PH-2-MID-1	385	4680.00	0.0921	3	0	10.9	0.0009	32.6 0.0027 7/15/99
1822527CT	PH-3-BEG-1	385	4608.00	0.0921	6	0	10.9	0.0009	65.2 0.0054 7/15/99
1822528CT	PH-4-END-2	385	4920.00	0.0921	2	0	10.9	0.0009	21.7 0.0017 7/15/99
1822529CT	PH-5-MID-2	385	4800.00	0.0921	9	0	10.9	0.0009	97.8 0.0078 7/15/99
1822530CT	PH-6-BEG-2	385	4944.00	0.0921	16	0	10.9	0.0008	173.8 0.0135 7/15/99
1822531CT	PH-7-END-3	385	4632.00	0.0921	1	0	10.9	0.0009	10.9 0.0009 7/15/99
1822532CT	PH-8-MID-3	385	4752.00	0.0921	17	0	10.9	0.0009	184.7 0.0150 7/15/99
1822533CT	PH-9-BEG-3	385	4680.00	0.0921	24	0	10.9	0.0009	260.7 0.0214 7/15/99
1822534CT	PH-10-BOX-1	385	4800.00	0.0921	0	0	10.9	0.0009	<10.9* <0.0009* 7/15/99
1822535CT	PH-11-FIELD-1	385	4800.00	0.0921	0	0	10.9	0.0009	<10.9* <0.0009* 7/15/99
1822536CT	PH-12-FIELD-2	385	4800.00	0.0921	0	0	10.9	0.0009	<10.9* <0.0009* 7/15/99

† Volumes provided by California Air Resources Board for Project C-99-031 were used to calculate analytical results and sensitivities.  
 † Analytical sensitivity is the calculated concentration based on one structure in the area analyzed.

Char - Chrysotile, Amp - Amphibole  
 Samples received on: Monday, July 12, 1999  
 • Results Less Than Analytical Sensitivity.  
 N/A - Sample not analyzed.

Authorized Signature B. S. Lee  
 Bernard Thomas, Project Manager  
 Date Date Saturday, July 17, 1999

RJ Lee Group, Inc.  
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 Test Report Page 1 of 1

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**Table II**  
**Asbestos Concentration for Structures  $\geq 5 \mu\text{m}$  in Length**  
**TEM Level III Analysis**  
**Project ATC907233**

RJ Lee Group Sample Number	Client Sample Number	Filter Area (sq mm)	Volume † (Liters)	Area (sq mm)	Structures		Analytical Sensitivity † (S/sq. mm)	Concentration for Structures $\geq 5 \mu\text{m}$ (S/cc)	
					Chr	Amp		(S/sq. mm)	(S/cc)
1822525CT	PH-1-END-1	385	4752.00	0.0921	0	0	10.9	0.0009	<10.9* <0.009*
1822526CT	PH-2-MID-1	385	4680.00	0.0921	0	0	10.9	0.0009	<10.9* <0.009*
1822527CT	PH-3-BEG-1	385	4608.00	0.0921	1	0	10.9	0.0009	10.9 0.009
1822528CT	PH-4-END-2	385	4920.00	0.0921	1	0	10.9	0.0009	10.9 0.009
1822529CT	PH-5-MID-2	385	4800.00	0.0921	0	0	10.9	0.0009	<10.9* <0.009*
1822530CT	PH-6-BEG-2	385	4944.00	0.0921	6	0	10.9	0.0008	65.2 0.0051
1822531CT	PH-7-END-3	385	4632.00	0.0921	0	0	10.9	0.0009	<10.9* <0.009*
1822532CT	PH-8-MID-3	385	4752.00	0.0921	3	0	10.9	0.0009	32.6 0.0026
1822533CT	PH-9-BEG-3	385	4680.00	0.0921	3	0	10.9	0.0009	32.6 0.0027
1822534CT	PH-10-BOX-1	385	4800.00	0.0921	0	0	10.9	0.0009	<10.9* <0.009*
1822535CT	PH-11-FIELD-1	385	4800.00	0.0921	0	0	10.9	0.0009	<10.9* <0.009*
1822536CT	PH-12-FIELD-2	385	4800.00	0.0921	0	0	10.9	0.0009	<10.9* <0.009*

† Volumes provided by California Air Resources Board for Project C-99-031 were used to calculate analytical results and sensitivities.  
 † Analytical sensitivity is the calculated concentration based on one structure in the area analyzed.

*B. Thomas*  
 Bernard Thomas, Project Manager  
 Date: Saturday, July 17, 1999

RJ Lee Group, Inc.  
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 Table II Page: 1 of 1

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**Table V**  
**Total Poisson Asbestos Concentrations**  
**TEM Level III Analysis**  
**Project ATC907233**

Sample Number	Client Sample Number	Actual Counts	Poisson Range		Lower Concentration Bounds †		Upper Concentration Bounds †		Analysis Date
			Lower	Upper	SqFt mm	SqFt mm	SqFt mm	SqFt mm	
1822525CT	PH-1-END-1	1	0	6	0.00	0.0000	65.18	0.0053	7/15/99
1822526CT	PH-2-MID-1	3	1	9	10.86	0.0009	97.76	0.0080	7/15/99
1822527CT	PH-3-BEG-1	6	2	13	21.73	0.0018	141.21	0.0118	7/15/99
1822528CT	PH-4-END-2	2	0	7	0.00	0.0000	76.04	0.0060	7/15/99
1822529CT	PH-5-MID-2	9	4	17	43.45	0.0035	184.66	0.0148	7/15/99
1822530CT	PH-6-BEG-2	16	9	26	97.76	0.0076	282.43	0.0220	7/15/99
1822531CT	PH-7-END-3	1	0	6	0.00	0.0000	65.18	0.0054	7/15/99
1822532CT	PH-8-MID-3	17	10	27	108.63	0.0088	293.29	0.0238	7/15/99
1822533CT	PH-9-BEG-3	24	15	36	162.94	0.0134	391.06	0.0322	7/15/99
1822534CT	PH-10-BOX-1	0	0	4	<10.86*	<0.0009*	43.45	0.0035	7/15/99
1822535CT	PH-11-FIELD-1	0	0	4	<10.86*	<0.0009*	43.45	0.0035	7/15/99
1822536CT	PH-12-FIELD-2	0	0	4	<10.86*	<0.0009*	43.45	0.0035	7/15/99

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† Volumes provided by California Air Resources Board for Project C-99-031 were used to calculate analytical results and sensitivities.

†Analytical sensitivity is the calculated concentration based on one structure in the area analyzed.

Samples received on: Monday, July 12, 1999

Chr - Chrysotile, Amp - Amphibole

\* Results Less Than Analytical Sensitivity.

N/A - Sample not analyzed.

Authorized Signature

Bernard Thomas, Project Manager  
 Saturday, July 17, 1999

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 Table V Page: 1 of 1

RJ Lee Group , Inc  
Count Sheet

Client Name	California Air Resources Board	RJL QA Number	CQ13189
Project Number	ATC907233	Grid Openings	10
RJL Sample #	1822525CT	Total Asbestos	1
Client Sample #	PH-1-END-1	Total Non-Asbestos	0
Microscope	1200 EX	Filter	CE 385 mm <sup>2</sup>
Accelerating Volt	100 Kv	Volume	4752.0 Liters
Magnification	20000 X	Grid Opening Area	0.0092 mm <sup>2</sup>
Analyst	YZ	Dilution Factor	1
EDS Disk			

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole	Comment
									Type	
1	0			NSD						
2	1	2.00	0.20	Chrysotile	BCM			0605		
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						

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NSD - No Structures Detected

**RJ Lee Group , Inc**  
**Count Sheet**

Client Name	California Air Resources Board	RJL QA Number	CQ13189
Project Number	ATC907233	Grid Openings	10
RJL Sample #	1822526CT	Total Asbestos	3
Client Sample #	PH-2-MID-1	Total Non-Asbestos	0
Microscope	1200 EX	Filter	CE 385 mm <sup>2</sup>
Accelerating Volt	100 Kv	Volume	4680.0 Liters
Magnification	20000 X	Grid Opening Area	0.0092 mm <sup>2</sup>
Analyst	YZ	Dilution Factor	1
EDS Disk			

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole	Comment
									Type	
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	1	3.70	0.30	Chrysotile	B			X		
7	0			NSD						
8	0			NSD						
9	1	3.00	0.10	Chrysotile	M			X		
9	2	3.20	0.15	Chrysotile	BCM			0606		
10	0			NSD						

---

NSD - No Structures Detected

RJ Lee Group , Inc  
Count Sheet

Client Name	California Air Resources Board	RJL QA Number	CQI3189
Project Number	ATC907233	Grid Openings	10
RJL Sample #	1822529CT	Total Asbestos	9
Client Sample #	PH-5-MID-2	Total Non-Asbestos	0
Microscope	1200 EX	Filter	CE 385 mm <sup>2</sup>
Accelerating Volt	100 Kv	Volume	4800.0 Liters
Magnification	20000 X	Grid Opening Area	0.0092 mm <sup>2</sup>
Analyst	YZ	Dilution Factor	1
EDS Disk			

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type		Comment
1	1	1.50	0.10	Chrysotile	CM			X			
2	1	2.00	0.18	Chrysotile	BM			X			
3	1	2.00	0.20	Chrysotile	BM			0608			
4	1	1.20	0.10	Chrysotile	M1			X			
5	0			NSD							
6	1	1.00	0.10	Chrysotile	M			X			
6	2	0.60	0.08	Chrysotile				X			
6	3	3.80	0.15	Chrysotile	BCM			X			
7	1	1.20	0.12	Chrysotile	BM			X			
8	0			NSD							
9	0			NSD							
10	1	2.00	0.20	Chrysotile	BM			X			

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NSD - No Structures Detected

RJ Lee Group , Inc  
Count Sheet

Client Name California Air Resources Board  
 Project Number ATC907233  
 RJL Sample # 1822531CT  
 Client Sample # PH-7-END-3  
 Microscope I200 EX  
 Accelerating Volt 100 Kv  
 Magnification 20000 X  
 Analyst YZ  
 EDS Disk

RJL QA Number CQ13189  
 Grid Openings 10  
 Total Asbestos 1  
 Total Non-Asbestos 0  
 Filter CE 385 mm<sup>2</sup>  
 Volume 4632.0 Liters  
 Grid Opening Area 0.0092 mm<sup>2</sup>  
 Dilution Factor 1

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SABD	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	1	3.70	0.50	Chrysotile B				0610		
9	0			NSD						
10	0			NSD						

---

NSD - No Structures Detected

RJ Lee Group, Inc  
Count Sheet

Client Name California Air Resources Board  
 Project Number ATC907233  
 RJL Sample # 1822531CT  
 Client Sample # PH-7-END-3  
 Microscope 1200 EX  
 Accelerating Volt 100 Kv  
 Magnification 20000 X  
 Analyst YZ  
 EDS Disk

RJL QA Number CQ13189  
 Grid Openings 10  
 Total Asbestos 1  
 Total Non-Asbestos 0  
 Filter CE 385 mm<sup>2</sup>  
 Volume 4632.0 Liters  
 Grid Opening Area 0.0092 mm<sup>2</sup>  
 Dilution Factor 1

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole	Comment
									Type	
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	1	3.70	0.50	Chrysotile B					0610	
9	0			NSD						
10	0			NSD						

---

NSD - No Structures Detected

RJ Lee Group , Inc  
Count Sheet

Client Name California Air Resources Board  
 Project Number ATC907233  
 RJL Sample # 1822532CT  
 Client Sample # PH-8-MID-3  
 Microscope 1200 EX  
 Accelerating Volt 100 Kv  
 Magnification 20000 X  
 Analyst YZ  
 EDS Disk

RJL QA Number CQI3189  
 Grid Openings 10  
 Total Asbestos 17  
 Total Non-Asbestos 0  
 Filter CE 385 mm<sup>2</sup>  
 Volume 4752.0 Liters  
 Grid Opening Area 0.0092 mm<sup>2</sup>  
 Dilution Factor 1

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SABD	Amphibole Type	Comment
1	0			NSD						
2	1	1.75	0.10	Chrysotile	0611				X	
3	0			NSD						
4	1	2.30	0.25	Chrysotile	BM				X	
4	2	2.50	0.10	Chrysotile					X	
4	3	5.50	0.13	Chrysotile	BM				X	
4	4	8.50	0.80	Chrysotile	BCM				X	
5	1	1.00	0.10	Chrysotile					X	
5	2	1.50	0.14	Chrysotile	BCM				X	
5	3	2.10	0.25	Chrysotile	BM				X	
5	4	0.60	0.12	Chrysotile	B				X	
5	5	0.70	0.17	Chrysotile	M				X	
5	6	1.20	0.08	Chrysotile					X	
6	1	0.80	0.08	Chrysotile					X	
7	1	2.10	0.14	Chrysotile	BC				X	
7	2	7.50	0.14	Chrysotile	BM				X	
8	0			NSD						
9	1	0.75	0.12	Chrysotile	BM				X	
10	1	1.50	0.07	Chrysotile					X	
10	2	1.40	0.14	Chrysotile	BM				X	

---

NSD - No Structures Detected

RJ Lee Group, Inc  
Count Sheet

Client Name	California Air Resources Board	RJL QA Number	CQ13189
Project Number	ATC907233	Grid Openings	10
RJL Sample #	1822533CT	Total Asbestos	24
Client Sample #	PH-9-BEG-3	Total Non-Asbestos	0
Microscope	1200 EX	Filter	CE 385 mm <sup>2</sup>
Accelerating Volt	100 Kv	Volume	4680.0 Liters
Magnification	20000 X	Grid Opening Area	0.0092 mm <sup>2</sup>
Analyst	YZ	Dilution Factor	1
EDS Disk			

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole	Comment
									Type	
1	1	2.50	0.18	Chrysotile	BM				X	
1	2	2.20	0.20	Chrysotile				0612		
2	0			NSD						
3	1	2.70	0.10	Chrysotile	M				X	
4	1	7.00	0.20	Chrysotile	B				X	
4	2	1.50	0.20	Chrysotile	BM				X	
4	3	1.50	0.20	Chrysotile	BM				X	
4	4	1.20	0.40	Chrysotile	BM				X	
5	1	0.60	0.12	Chrysotile	BM				X	
5	2	0.70	0.10	Chrysotile	M				X	
5	3	2.00	0.12	Chrysotile	BC				X	
6	1	9.00	0.12	Chrysotile	BCM				X	
6	2	2.70	0.25	Chrysotile	BM				X	
6	3	2.10	0.10	Chrysotile	M				X	
6	4	3.50	0.12	Chrysotile	BM				X	
6	5	1.20	0.12	Chrysotile	BM				X	
7	1	9.50	0.75	Chrysotile	BM				X	
7	2	2.90	0.20	Chrysotile	B				X	
7	3	1.20	0.12	Chrysotile	BM				X	
7	4	2.00	0.12	Chrysotile	BCM				X	
7	5	2.50	0.12	Chrysotile	BM				X	
8	0			NSD						
9	1	1.20	0.15	Chrysotile	BM				X	
9	2	2.90	0.30	Chrysotile	BCM				X	
10	1	3.20	0.12	Chrysotile	BM				X	
10	2	3.00	0.50	Chrysotile	BCM				X	

---

NSD - No Structures Detected

RJ Lee Group, Inc  
Count Sheet

Client Name California Air Resources Board  
 Project Number ATC907233  
 RJL Sample # 1822534CT  
 Client Sample # PH-10-BOX-1  
 Microscope 1200 EX  
 Accelerating Volt 100 Kv  
 Magnification 20000 X  
 Analyst YZ  
 EDS Disk

RJL QA Number CQ13189  
 Grid Openings 10  
 Total Asbestos 0  
 Total Non-Asbestos 0  
 Filter CE 385 mm<sup>2</sup>  
 Volume 4800.0 Liters  
 Grid Opening Area 0.0092 mm<sup>2</sup>  
 Dilution Factor 1

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole	Comment
									Type	
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						

---

NSD - No Structures Detected

RJ Lee Group , Inc  
 Count Sheet

Client Name California Air Resources Board  
 Project Number ATC907233  
 RJL Sample # 1822535CT  
 Client Sample # PH-II-FIELD-1  
 Microscope 1200 EX  
 Accelerating Volt 100 Kv  
 Magnification 20000 X  
 Analyst YZ  
 EDS Disk

RJL QA Number CQ13189  
 Grid Openings 10  
 Total Asbestos 0  
 Total Non-Asbestos 0  
 Filter CE 385 mm<sup>2</sup>  
 Volume 4800.0 Liters  
 Grid Opening Area 0.0092 mm<sup>2</sup>  
 Dilution Factor 1

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						

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NSD - No Structures Detected

**RJ Lee Group , Inc**  
**Count Sheet**

Client Name	California Air Resources Board	RJL QA Number	CQ13189
Project Number	ATC907233	Grid Openings	10
RJL Sample #	1822536CT	Total Asbestos	0
Client Sample #	PH-12-FIELD-2	Total Non-Asbestos	0
Microscope	1200 EX	Filter	CE 385 mm <sup>2</sup>
Accelerating Volt	100 Kv	Volume	4800.0 Liters
Magnification	20000 X	Grid Opening Area	0.0092 mm <sup>2</sup>
Analyst	YZ	Dilution Factor	1
EDS Disk			

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole Type	Comment
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	0			NSD						
5	0			NSD						
6	0			NSD						
7	0			NSD						
8	0			NSD						
9	0			NSD						
10	0			NSD						

---

NSD - No Structures Detected



## Air Resources Board

Alan C. Lloyd, Ph.D.  
Chairman

Winston H. Hickox  
Secretary for  
Environmental  
Protection

2020 L Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov



Gray Davis  
Governor

July 9, 1999

Bernard Thomas  
Project Leader  
RJ Lee Group  
530 McCormick St.  
San Leandro, CA 94577

*BERNARD*  
Dear Mr. Thomas:

Per our Contract, enclosed are 12 samples for TEM analysis using ARB Level 3 analysis. I need these samples analyzed within 48 hours from receipt by your laboratory. If you cannot meet this analysis time frame please contact me at (916) 263-2060. Please use the ARB Log # as the sample # in your tracking system. I also want to pick up all analyzed Cassettes and Bulk Samples on Thursday, July 15, 1999. I am sending Matt Lettau of my staff to pick up the samples. He will arrive around 11:00am. He will bring the necessary chain of custody forms to transfer the custody of the samples.

Please fax the preliminary results to George Lew at (916) 263-2067. Send the final results along with the completed chain of custody form to:

George Lew, Chief  
Engineering and Laboratory Branch  
Air Resources Board  
P. O. Box 2815  
600 North Market Blvd  
Sacramento, CA 95814

If you have any questions call me at (916) 263-2060.

Sincerely,

*James E. McCormack*  
James E. McCormack  
Air Resources Engineer  
Monitoring and Laboratory Division

California Environmental Protection Agency  
Printed on Recycled Paper



**RJ LeeGroup , Inc**  
**Count Sheet**

Client Name	California Air Resources Board	RJL QA Number	CQ13189
Project Number	ATC907233	Grid Openings	10
RJL Sample #	1822527CT	Total Asbestos	6
Client Sample #	PH-3-BEG-1	Total Non-Asbestos	0
Microscope	I200 EX	Filter	CE 385 mm <sup>2</sup>
Accelerating Volt	100 Kv	Volume	4608.0 Liters
Magnification	20000 X	Grid Opening Area	0.0092 mm <sup>2</sup>
Analyst	YZ	Dilution Factor	1
EDS Disk			

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole		Comment
									Type		
1	1	2.10	0.12	Chrysotile	BM				X		
1	2	5.00	0.50	Chrysotile	BCM				X		
2	0			NSD							
3	0			NSD							
4	1	4.20	0.70	Chrysotile	BM			0607			
5	0			NSD							
6	0			NSD							
7	1	1.65	0.12	Chrysotile	BM				X		
8	1	2.00	0.12	Chrysotile	BCM				X		
9	1	2.00	0.14	Chrysotile	BM				X		
10	0			NSD							

---

NSD - No Structures Detected

RJ Lee Group, Inc  
Count Sheet

Client Name	California Air Resources Board	RJL QA Number	CQ13189
Project Number	ATC907233	Grid Openings	10
RJL Sample #	1822528CT	Total Asbestos	2
Client Sample #	PH-4-END-2	Total Non-Asbestos	1
Microscope	1200 EX	Filter	CE 385 mm <sup>2</sup>
Accelerating Volt	100 Kv	Volume	4920.0 Liters
Magnification	20000 X	Grid Opening Area	0.0092 mm <sup>2</sup>
Analyst	YZ	Dilution Factor	1
EDS Disk			

Field	Fiber	Length μm	Width μm	Structure Type	Morph	EDS	Photo	SAED	Amphibole	Comment
									Type	
1	0			NSD						
2	0			NSD						
3	0			NSD						
4	1	1.50	0.12	Chrysotile	B			X		
5	1	6.40	0.30	Chrysotile	BCM			X		
6	0			NSD						
7	0			NSD						
8	1	1.00	0.10	Ambiguous	M1					
9	0			NSD						
10	0			NSD						

---

NSD - No Structures Detected

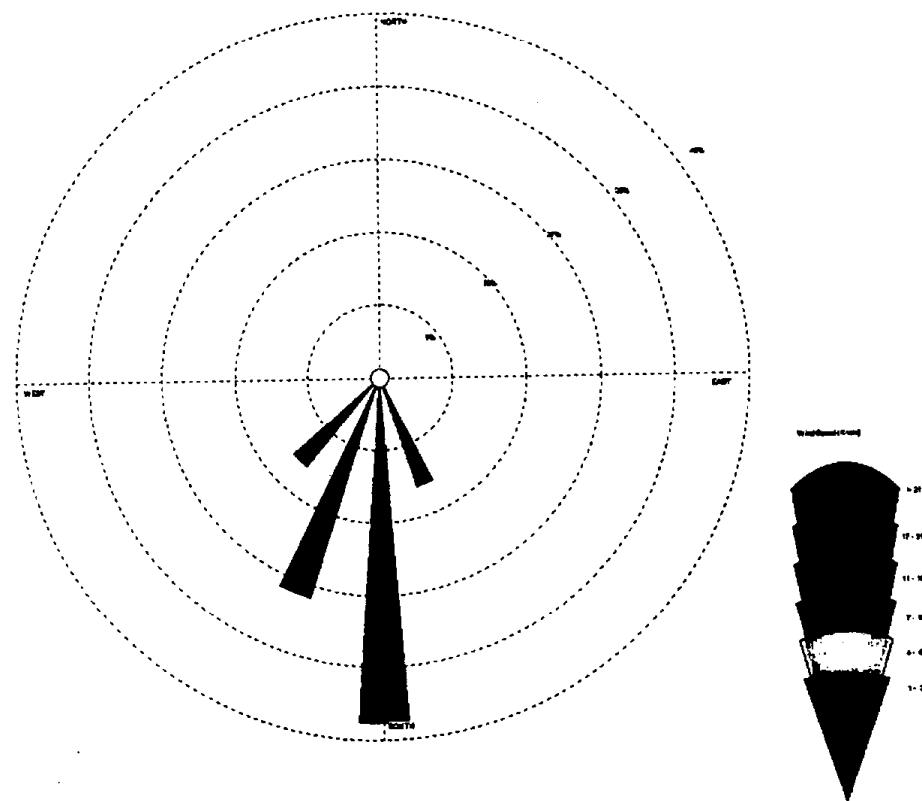
**Attachment 8**  
**Observed Traffic at the "Beginning Site" On McKeon Ponderosa Way\***

Date	Day of Week	Vehicles	Motorcycles
July 5, 1999	Tuesday	8	6
July 6, 1999	Wednesday	18	5
July 7, 1999	Thursday	5**	2**

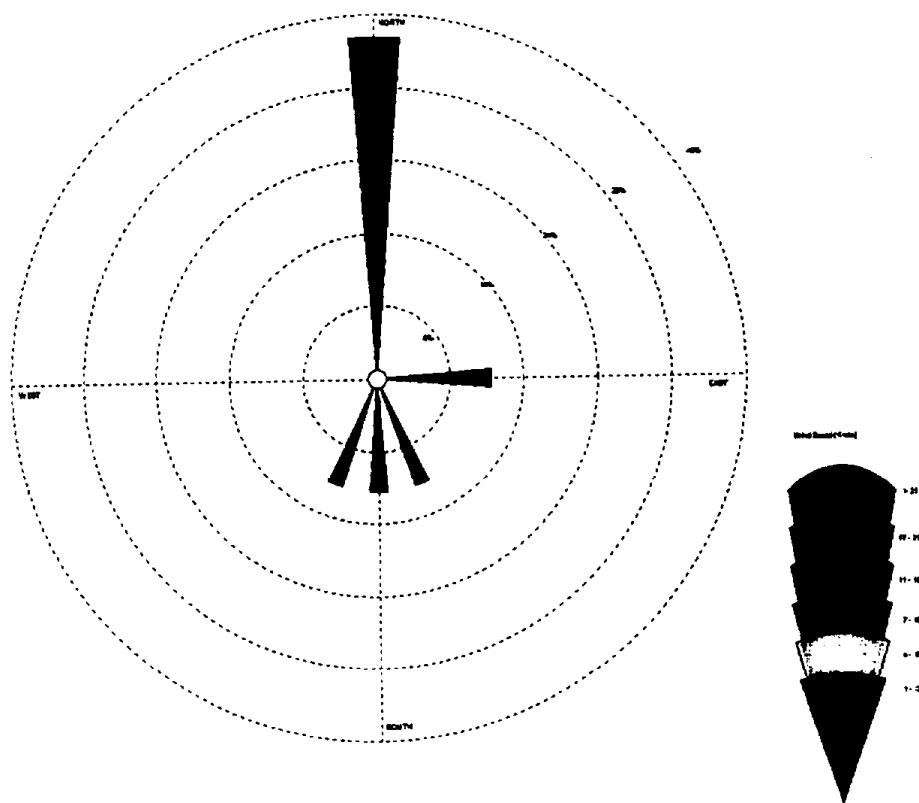
\* Sampling occurred during the hours of 0730 to 1530 hours.

\*\* Wasn't present all the time during sampling. Took two hours to photograph sampling sites and take distance measurements.

**Attachment 9**  
**Meteorological Data**  
**Wind Rose Plot**  
Beginning of abandoned road near Foresthill - 1



**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
Beginning of abandoned road near Foresthill - 2



Company Name  
**ARB**

Orientation  
Direction blowing from

Plot Year-Date-Time  
**7/7/99 0800 to 7/7/99 1500**

Display  
**Wind Speed**

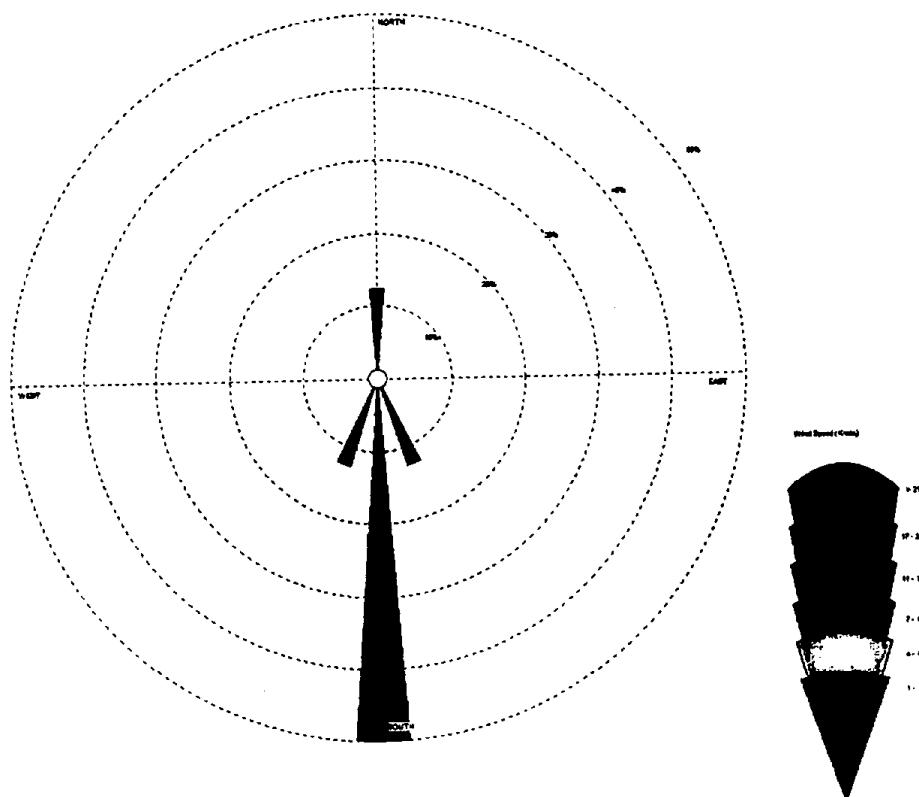
Units  
**Knots**

Sample ID  
**Beg-2**

Avg. Wind Speed  
**1.43 Knots**

Calm Winds  
**12.5%**

**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
Beginning of abandoned road near Foresthill - 3



Company Name  
ARB

Orientation  
Direction blowing from

Plot Year-Date-Time  
7/8/99 0800 to 7/8/99 1500

Display  
Wind Speed

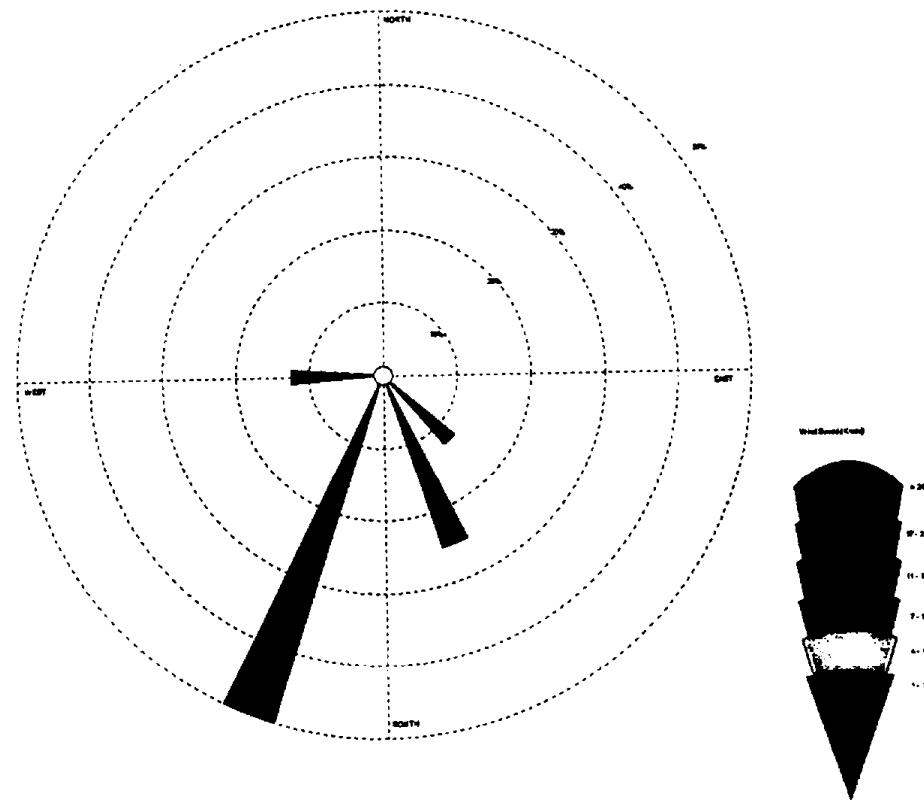
Units  
Knots

Sample ID  
Beg-3

Avg. Wind Speed  
1.71 Knots

Calm Winds  
12.5%

**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
Middle of abandoned road near Foresthill - 1



Company Name  
**ARB**

Orientation  
**Direction blowing from**

Plot Year-Date-Time  
**7/6/99 0900 to 7/6/99 1600**

Display  
**Wind Speed**

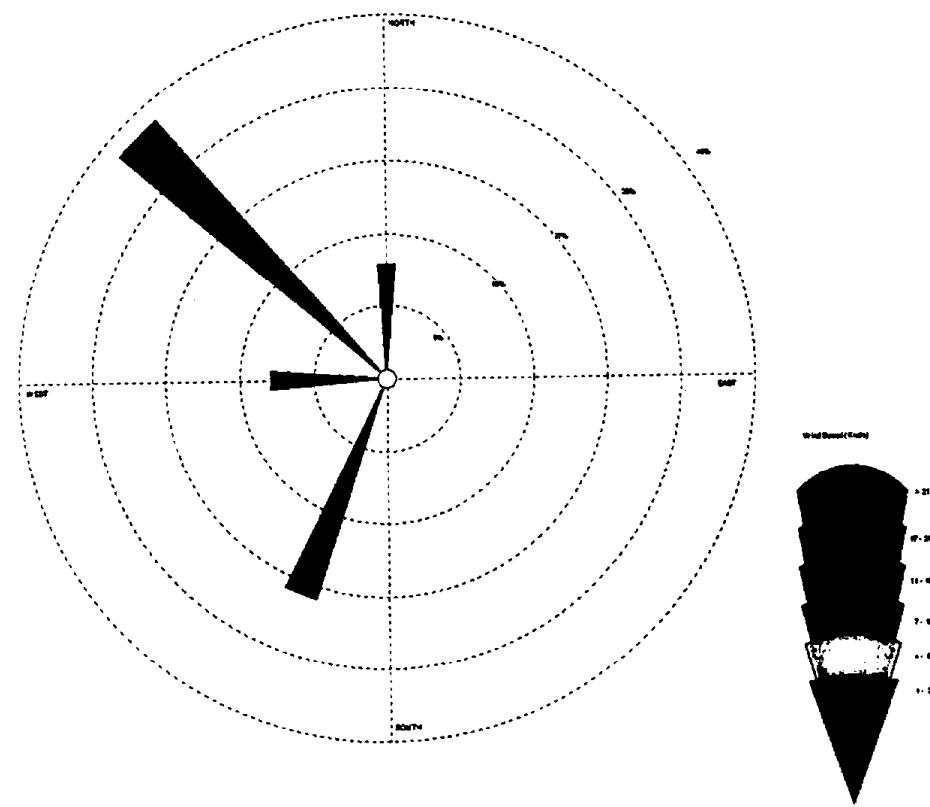
Units  
**Knots**

Sample ID  
**Mid-1**

Avg. Wind Speed  
**2.00 Knots**

Calm Winds  
**0.00%**

**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
Middle of abandoned road near Foresthill - 2



Company Name  
**ARB**

Orientation  
**Direction blowing from**

Plot Year-Date-Time  
**7/7/99 0900 to 7/7/99 1500**

Display  
**Wind Speed**

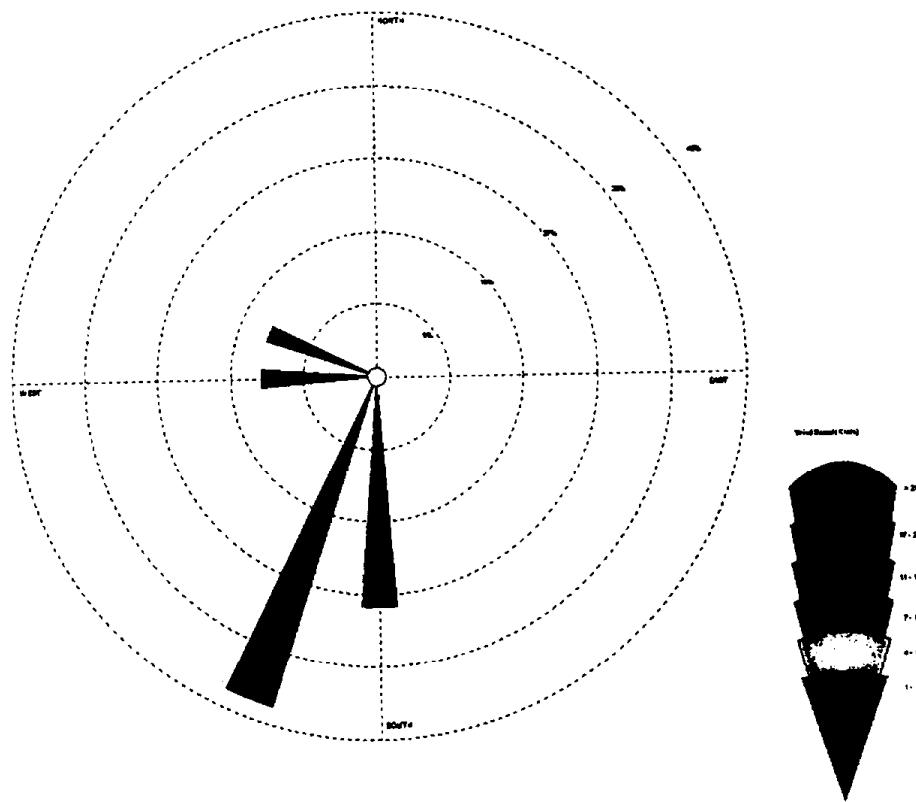
Units  
**Knots**

Sample ID  
**Mid-2**

Avg. Wind Speed  
**2.00 Knots**

Calm Winds  
**0.00%**

**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
Middle of abandoned road near Foresthill - 3



Company Name  
**ARB**

Orientation  
**Direction blowing from**

Plot Year-Date-Time  
**7/8/99 0900 to 7/8/99 1500**

Display  
**Wind Speed**

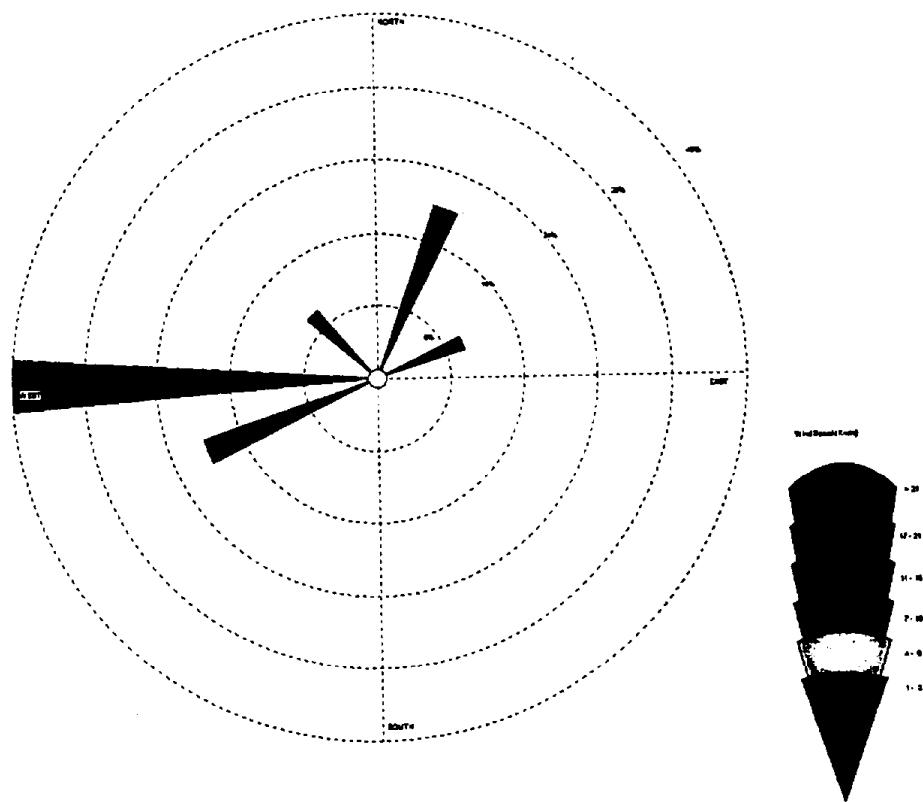
Units  
**Knots**

Sample ID  
**Mid-3**

Avg. Wind Speed  
**2.14 Knots**

Calm Winds  
**0.00%**

**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
End of abandoned road near Foresthill - 1



Company Name  
**ARB**

Orientation  
**Direction blowing from**

Plot Year-Date-Time  
**7/6/99 0700 to 7/6/99 1600**

Display  
**Wind Speed**

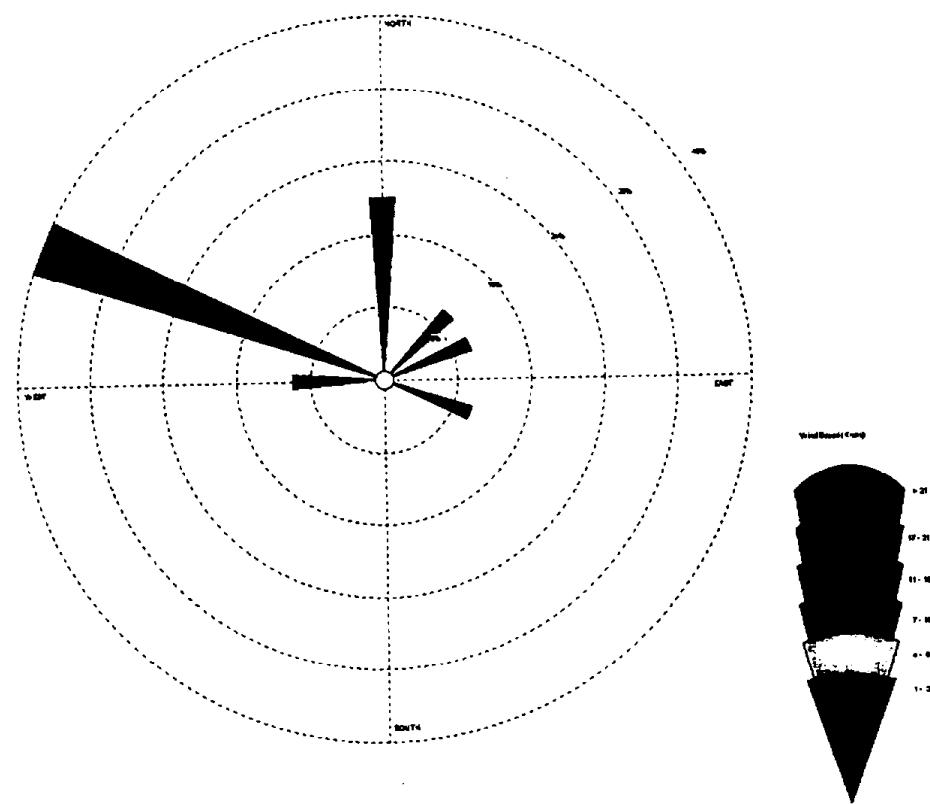
Units  
**Knots**

Sample ID  
**End-1**

Avg. Wind Speed  
**2.30 Knots**

Calm Winds  
**0.00%**

**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
End of abandoned road near Foresthill - 2



Company Name  
**ARB**

Orientation  
**Direction blowing from**

Plot Year-Date-Time  
**7/7/99 0700 to 7/7/99 1600**

Display  
**Wind Speed**

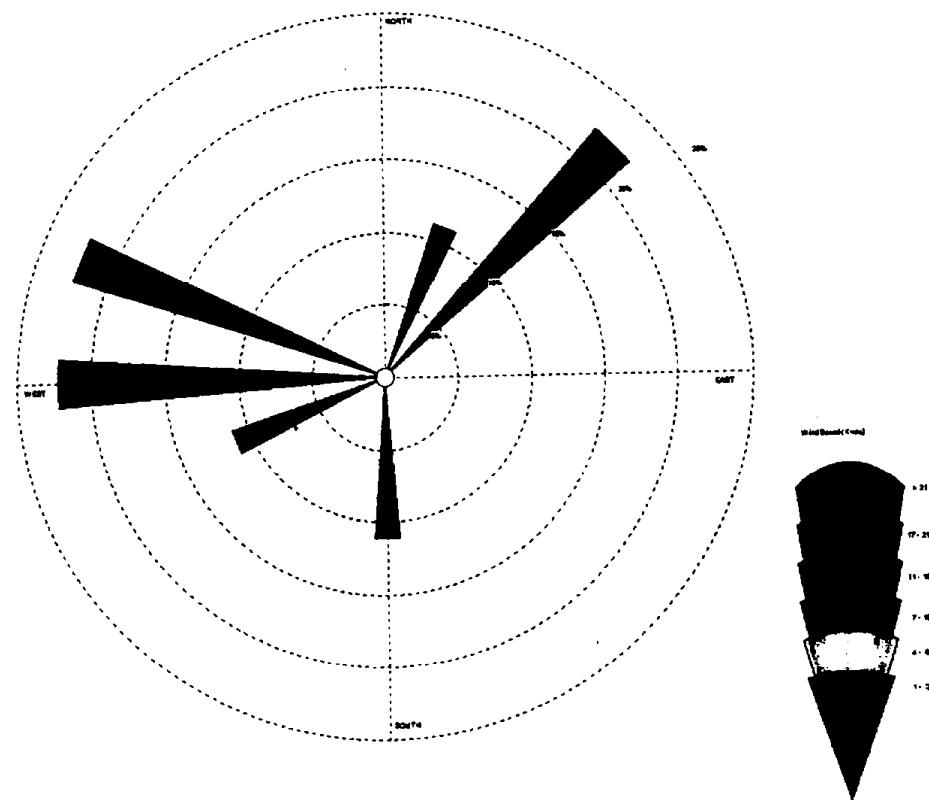
Units  
**Knots**

Sample ID  
**End-2**

Avg. Wind Speed  
**2.40 Knots**

Calm Winds  
**0.00%**

**Attachment 9 cont'd**  
**Meteorological Data**  
**Wind Rose Plot**  
End of abandoned road near Foresthill - 3



Company Name  
ARB

Orientation  
Direction blowing from

Plot Year-Date-Time  
7/8/99 0700 to 7/8/99 1500

Display  
Wind Speed

Units  
Knots

Sample ID  
End-3

Avg. Wind Speed  
2.00 Knots

Calm Winds  
0.00%